

Marx Hardy Machiavelli Joyce Austen  
Defoe Abbot Melville Montaigne Cooper Emerson Hugo  
Stoker Wilde Christie Maupassant Haggard Chesterton Molière Eliot Grimm  
Garnett Engels Byron Schiller  
Goethe Hawthorne Smith Kafka  
Cotton Fitzgerald Dostoyevsky Hall  
Baum Henry Kipling Doyle Willis  
Leslie Dumas Flaubert Nietzsche Turgenev Balzac  
Stockton Vatsyayana Crane  
Burroughs Verne  
Curtis Tocqueville Gogol Busch  
Homer Tolstoy Whitman  
Darwin Thoreau Twain  
Potter Zola Lawrence Dickens Plato Scott  
Kant Freud Jowett Stevenson Andersen Burton Harte  
London Descartes Cervantes Wells Hesse  
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# **Health and Education**

Charles Kingsley

# Imprint

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## THE SCIENCE OF HEALTH

Whether the British race is improving or degenerating? What, if it seem probably degenerating, are the causes of so great an evil? How they can be, if not destroyed, at least arrested?—These are questions worthy the attention, not of statesmen only and medical men, but of every father and mother in these isles. I shall say somewhat about them in this Essay; and say it in a form which ought to be intelligible to fathers and mothers of every class, from the highest to the lowest, in hopes of convincing some of them at least that the science of health, now so utterly neglected in our curriculum of so-called education, ought to be taught—the rudiments of it at least—in every school, college, and university.

We talk of our hardy forefathers; and rightly. But they were hardy, just as the savage is usually hardy, because none but the hardy lived. They may have been able to say of themselves—as they do in a state paper of 1515, now well known through the pages of Mr. Froude—“What comyn folk of all the world may compare with the comyns of England, in riches, freedom, liberty, welfare, and all prosperity? What comyn folk is so mighty, and so strong in the felde, as the comyns of England?” They may have been fed on “great shins of beef,” till they became, as Benvenuto Cellini calls them, “the English wild beasts.” But they increased in numbers slowly, if at all, for centuries. Those terrible laws of natural selection, which issue in “the survival of the fittest,” cleared off the less fit, in every generation, principally by infantile disease, often by wholesale famine and pestilence; and left, on the whole, only those of the strongest constitutions to perpetuate a hardy, valiant, and enterprising race.

At last came a sudden and unprecedented change. In the first years of the century, steam and commerce produced an enormous increase in the population. Millions of fresh human beings found employment, married, brought up children who found employment in their turn, and learnt to live more or less civilised lives. An event, doubtless, for which God is to be thanked. A quite new phase of humanity, bringing with it new vices and new dangers: but bringing, also, not merely new comforts, but new noblenesses, new gen-

erosities, new conceptions of duty, and of how that duty should be done. It is childish to regret the old times, when our soot-grimed manufacturing districts were green with lonely farms. To murmur at the transformation would be, I believe, to murmur at the will of Him without whom not a sparrow falls to the ground.

“The old order changeth, yielding place to the  
new,  
And God fulfils himself in many ways,  
Lest one good custom should corrupt the world.”

Our duty is, instead of longing for the good old custom, to take care of the good new custom, lest it should corrupt the world in like wise. And it may do so thus:—

The rapid increase of population during the first half of this century began at a moment when the British stock was specially exhausted; namely, about the end of the long French war. There may have been periods of exhaustion, at least in England, before that. There may have been one here, as there seems to have been on the Continent, after the Crusades; and another after the Wars of the Roses. There was certainly a period of severe exhaustion at the end of Elizabeth’s reign, due both to the long Spanish and Irish wars and to the terrible endemics introduced from abroad; an exhaustion which may have caused, in part, the national weakness which hung upon us during the reign of the Stuarts. But after none of these did the survival of the less fit suddenly become more easy; or the discovery of steam power, and the acquisition of a colonial empire, create at once a fresh demand for human beings and a fresh supply of food for them. Britain, at the beginning of the nineteenth century, was in an altogether new social situation.

At the beginning of the great French war; and, indeed, ever since the beginning of the war with Spain in 1739—often snubbed as the “war about Jenkins’s ear”—but which was, as I hold, one of the most just, as it was one of the most popular, of all our wars; after, too, the once famous “forty fine harvests” of the eighteenth century, the British people, from the gentleman who led to the soldier or sailor who followed, were one of the mightiest and most capable races which the world has ever seen, comparable best to the old Roman, at his mightiest and most capable period. That, at least,

their works testify. They created—as far as man can be said to create anything—the British Empire. They won for us our colonies, our commerce, the mastery of the seas of all the world. But at what a cost—

“Their bones are scattered far and wide,  
By mount, and stream, and sea.”

Year after year, till the final triumph of Waterloo, not battle only, but worse destroyers than shot and shell—fatigue and disease—had been carrying off our stoutest, ablest, healthiest young men, each of whom represented, alas! a maiden left unmarried at home, or married, in default, to a less able man. The strongest went to the war; each who fell left a weaklier man to continue the race; while of those who did not fall, too many returned with tainted and weakened constitutions, to injure, it may be, generations yet unborn. The middle classes, being mostly engaged in peaceful pursuits, suffered less of this decimation of their finest young men; and to that fact I attribute much of their increasing preponderance, social, political, and intellectual, to this very day. One cannot walk the streets of any of our great commercial cities without seeing plenty of men, young and middle-aged, whose whole bearing and stature shows that the manly vigour of our middle class is anything but exhausted. In Liverpool, especially, I have been much struck not only with the vigorous countenance, but with the bodily size of the mercantile men on 'Change. But it must be remembered always, first, that these men are the very ilite of their class; the cleverest men; the men capable of doing most work; and next, that they are, almost all of them, from the great merchant who has his villa out of town, and perhaps his moor in the Highlands, down to the sturdy young volunteer who serves in the haberdasher's shop, country-bred men; and that the question is, not what they are like now, but what their children and grand-children, especially the fine young volunteer's, will be like? And a very serious question I hold that to be; and for this reason:

War is, without doubt, the most hideous physical curse which fallen man inflicts upon himself; and for this simple reason, that it reverses the very laws of nature, and is more cruel even than pestilence. For instead of issuing in the survival of the fittest, it issues in

the survival of the less fit: and therefore, if protracted, must deteriorate generations yet unborn. And yet a peace such as we now enjoy, prosperous, civilised, humane, is fraught, though to a less degree, with the very same ill effect.

In the first place, tens of thousands—Who knows it not?—lead sedentary and unwholesome lives, stooping, asphyxiated, employing as small a fraction of their bodies as of their minds. And all this in dwellings, workshops, what not?—the influences, the very atmosphere of which tend not to health, but to unhealth, and to drunkenness as a solace under the feeling of unhealth and depression. And that such a life must tell upon their offspring, and if their offspring grow up under similar circumstances, upon their offspring's offspring, till a whole population may become permanently degraded, who does not know? For who that walks through the by-streets of any great city does not see? Moreover, and this is one of the most fearful problems with which modern civilisation has to deal—we interfere with natural selection by our conscientious care of life, as surely as does war itself. If war kills the most fit to live, we save alive those who—looking at them from a merely physical point of view—are most fit to die. Everything which makes it more easy to live; every sanatory reform, prevention of pestilence, medical discovery, amelioration of climate, drainage of soil, improvement in dwelling-houses, workhouses, gaols; every reformatory school, every hospital, every cure of drunkenness, every influence, in short, which has—so I am told—increased the average length of life in these islands, by nearly one-third, since the first establishment of life insurances, one hundred and fifty years ago; every influence of this kind, I say, saves persons alive who would otherwise have died; and the great majority of these will be, even in surgical and zymotic cases, those of least resisting power; who are thus preserved to produce in time a still less powerful progeny.

Do I say that we ought not to save these people, if we can? God forbid. The weakly, the diseased, whether infant or adult, is here on earth; a British citizen; no more responsible for his own weakness than for his own existence. Society, that is, in plain English, we and our ancestors, are responsible for both; and we must fulfil the duty, and keep him in life; and, if we can, heal, strengthen, develop him to the utmost; and make the best of that which “fate and our own

deservings" have given us to deal with. I do not speak of higher motives still; motives which to every minister of religion must be paramount and awful. I speak merely of physical and social motives, such as appeal to the conscience of every man—the instinct which bids every human-hearted man or woman to save life, alleviate pain, like Him who causes His sun to shine on the evil and on the good, and His rain to fall on the just and on the unjust.

But it is palpable, that in so doing we must, year by year, preserve a large percentage of weakly persons, who, marrying freely in their own class, must produce weaklier children, and they weaklier children still. Must, did I say? There are those who are of opinion—and I, after watching and comparing the histories of many families, indeed, of every one with whom I have come in contact for now five-and-thirty years, in town and country, can only fear that their opinion is but too well founded on fact—that in the great majority of cases, in all classes whatsoever, the children are not equal to their parents, nor they, again, to their grandparents of the beginning of the century; and that this degrading process goes on most surely, and most rapidly, in our large towns, and in proportion to the antiquity of those towns, and therefore in proportion to the number of generations during which the degrading influences have been at work.

This and cognate dangers have been felt more and more deeply, as the years have rolled on, by students of human society. To ward them off, theory after theory has been put on paper, especially in France, which deserve high praise for their ingenuity, less for their morality, and, I fear, still less for their common-sense. For the theorist in his closet is certain to ignore, as inconvenient to the construction of his Utopia, certain of those broad facts of human nature which every active parish priest, medical man, or poor-law guardian has to face every day of his life.

Society and British human nature are what they have become by the indirect influences of long ages, and we can no more reconstruct the one than we can change the other. We can no more mend men by theories than we can by coercion—to which, by the by, almost all these theorists look longingly as their final hope and mainstay. We must teach men to mend their own matters, of their own reason,

and their own free-will. We must teach them that they are the arbiters of their own destinies; and, to a fearfully great degree, of their children's destinies after them. We must teach them not merely that they ought to be free, but that they are free, whether they know it or not, for good and for evil. And we must do that in this case, by teaching them sound practical science; the science of physiology, as applied to health. So, and so only, can we check—I do not say stop entirely—though I believe even that to be ideally possible; but at least check the process of degradation which I believe to be surely going on, not merely in these islands, but in every civilised country in the world, in proportion to its civilisation.

It is still a question whether science has fully discovered those laws of hereditary health, the disregard of which causes so many marriages disastrous to generations yet unborn. But much valuable light has been thrown on this most mysterious and most important subject during the last few years. That light—and I thank God for it—is widening and deepening rapidly. And I doubt not that, in a generation or two more, enough will be known to be thrown into the shape of practical and proveable rules; and that, if not a public opinion, yet at least, what is more useful far, a wide-spread private opinion, will grow up, especially among educated women, which will prevent many a tragedy and save many a life.

But, as to the laws of personal health: enough, and more than enough, is known already, to be applied safely and easily by any adults, however unlearned, to the preservation not only of their own health, but of that of their children.

The value of healthy habitations, of personal cleanliness, of pure air and pure water, of various kinds of food, according as each tends to make bone, fat, or muscle, provided only—provided only—that the food be unadulterated; the value of various kinds of clothing, and physical exercise, of a free and equal development of the brain-power, without undue overstrain in any one direction; in one word, the method of producing, as far as possible, the *mentem sanam in corpore sano*, and the wonderful and blessed effects of such obedience to those laws of nature, which are nothing but the good will of God expressed in facts—their wonderful and blessed tendency, I say, to eliminate the germs of hereditary disease, and to

actually regenerate the human system—all this is known; known as fully and clearly as any human knowledge need be known; it is written in dozens of popular books and pamphlets. And why should this divine voice, which cries to man, tending to sink into effeminate barbarism through his own hasty and partial civilisation,—“It is not too late. For your bodies, as for your spirits, there is an upward, as well as a downward path. You, or if not you, at least the children whom you have brought into the world, for whom you toil, for whom you hoard, for whom you pray, for whom you would give your lives,—they still may be healthy, strong, it may be beautiful, and have all the intellectual and social, as well as the physical advantages, which health, strength, and beauty give.”—Ah, why is this divine voice now, as of old, Wisdom crying in the streets, and no man regarding her? I appeal to women, who are initiated, as we men can never be, into the stern mysteries of pain, and sorrow, and self-sacrifice;—they who bring forth children, weep over children, slave for children, and, if they have none of their own, then slave, with the holy instinct of the sexless bee, for the children of others—Let them say, shall this thing be?

Let my readers pardon me if I seem to write too earnestly. That I speak neither more nor less than the truth, every medical man knows full well. Not only as a very humble student of physiology, but as a parish priest of thirty years’ standing, I have seen so much unnecessary misery; and I have in other cases seen similar misery so simply avoided; that the sense of the vastness of the evil is intensified by my sense of the easiness of the cure.

Why, then—to come to practical suggestions—should there not be opened in every great town in these realms a public school of health? It might connect itself with—I hold that it should form an integral part of—some existing educational institute. But it should at least give practical lectures, for fees small enough to put them within the reach of any respectable man or woman, however poor. I cannot but hope that such schools of health, if opened in the great manufacturing towns of England and Scotland, and, indeed, in such an Irish town as Belfast, would obtain pupils in plenty, and pupils who would thoroughly profit by what they hear. The people of these towns are, most of them, specially accustomed by their own trades to the application of scientific laws. To them, therefore, the

application of any fresh physical laws to a fresh set of facts, would have nothing strange in it. They have already something of that inductive habit of mind which is the groundwork of all rational understanding or action. They would not turn the deaf and contemptuous ear with which the savage and the superstitious receive the revelation of nature's mysteries. Why should not, with so hopeful an audience, the experiment be tried far and wide, of giving lectures on health, as supplementary to those lectures on animal physiology which are, I am happy to say, becoming more and more common? Why should not people be taught—they are already being taught at Birmingham—something about the tissues of the body, their structure and uses, the circulation of the blood, respiration, chemical changes in the air respired, amount breathed, digestion, nature of food, absorption, secretion, structure of the nervous system,—in fact, be taught something of how their own bodies are made and how they work? Teaching of this kind ought to, and will, in some more civilised age and country, be held a necessary element in the school-course of every child, just as necessary as reading, writing, and arithmetic; for it is after all the most necessary branch of that "technical education" of which we hear so much just now, namely, the technic, or art, of keeping oneself alive and well.

But we can hardly stop there. After we have taught the condition of health, we must teach also the condition of disease; of those diseases specially which tend to lessen wholesale the health of town-folk, exposed to an artificial mode of life. Surely young men and women should be taught something of the causes of zymotic disease, and of scrofula, consumption, rickets, dipsomania, cerebral derangement, and such like. They should be shown the practical value of pure air, pure water, unadulterated food, sweet and dry dwellings. Is there one of them, man or woman, who would not be the safer and happier, and the more useful to his or her neighbours, if they had acquired some sound notions about those questions of drainage on which their own lives and the lives of their children may every day depend? I say—women as well as men. I should have said women rather than men. For it is the women who have the ordering of the household, the bringing up of the children; the women who bide at home, while the men are away, it may be at the other end of the earth.

And if any say, as they have a right to say—"But these are subjects which can hardly be taught to young women in public lectures;" I rejoin,—Of course not, unless they are taught by women,—by women, of course, duly educated and legally qualified. Let such teach to women, what every woman ought to know, and what her parents will very properly object to her hearing from almost any man. This is one of the main reasons why I have, for twenty years past, advocated the training of women for the medical profession; and one which countervails, in my mind, all possible objections to such a movement. And now, thank God, I am seeing the common sense of Great Britain, and indeed of every civilised nation, gradually coming round to that which seemed to me, when I first conceived of it, a dream too chimerical to be cherished save in secret—the restoring woman to her natural share in that sacred office of healer, which she held in the Middle Ages, and from which she was thrust out during the sixteenth century.

I am most happy to see, for instance, that the National Health Society, {15} which I earnestly recommend to the attention of my readers, announces a "Course of Lectures for Ladies on Elementary Physiology and Hygiene, by Miss Chessar," to which I am also most happy to see, governesses are admitted at half-fees. Alas! how much misery, disease, and even death, might have been prevented, had governesses been taught such matters thirty years ago, I, for one, know too well. May the day soon come when there will be educated women enough to give such lectures throughout these realms, to rich as well as poor,—for the rich, strange to say, need them often as much as the poor do,—and that we may live to see, in every great town, health classes for women as well as for men, sending forth year by year more young women and young men taught, not only to take care of themselves and of their families, but to exercise moral influence over their fellow-citizens, as champions in the battle against dirt and drunkenness, disease and death.

There may be those who would answer—or rather, there would certainly have been those who would have so answered thirty years ago, before the so-called materialism of advanced science had taught us some practical wisdom about education, and reminded people that they have bodies as well as minds and souls—"You say, we are likely to grow weaker, unhealthier. And if it were so, what

matter? Mind makes the man, not body. We do not want our children to be stupid giants and bravos; but clever, able, highly educated, however weakly Providence or the laws of nature may have chosen to make them. Let them overstrain their brains a little; let them contract their chests, and injure their digestion and their eyesight, by sitting at desks, poring over books. Intellect is what we want. Intellect makes money. Intellect makes the world. We would rather see our son a genius than an athlete." Well: and so would I. But what if intellect alone does not even make money, save as Messrs. Dodson & Fogg, Sampson Brass, and Montagu Tigg were wont to make it, unless backed by an able, enduring, healthy physique, such as I have seen, almost without exception, in those successful men of business whom I have had the honour and the pleasure of knowing? What if intellect, or what is now called intellect, did not make the world, or the smallest wheel or cog of it? What if, for want of obeying the laws of nature, parents bred up neither a genius nor an athlete, but only an incapable unhappy personage, with a huge upright forehead, like that of a Byzantine Greek, filled with some sort of pap instead of brains, and tempted alternately to fanaticism and strong drink? We must, in the great majority of cases have the corpus sanem if we want the mentem sanem; and healthy bodies are the only trustworthy organs for healthy minds. Which is cause and which is effect, I shall not stay to debate here. But wherever we find a population generally weakly, stunted, scrofulous, we find in them a corresponding type of brain, which cannot be trusted to do good work; which is capable more or less of madness, whether solitary or epidemic. It may be very active; it may be very quick at catching at new and grand ideas—all the more quick, perhaps, on account of its own secret *malaise* and self-discontent: but it will be irritable, spasmodic, hysterical. It will be apt to mistake capacity of talk for capacity of action, excitement for earnestness, virulence for force, and, too often, cruelty for justice. It will lose manful independence, individuality, originality; and when men act, they will act, from the consciousness of personal weakness, like sheep rushing over a hedge, leaning against each other, exhorting each other to be brave, and swaying about in mobs and masses. These were the intellectual weaknesses which, as I read history, followed on physical degradation in Imperial Rome, in Alexandria, in Byzantium.

Have we not seen them reappear, under fearful forms, in Paris but the other day?

I do not blame; I do not judge. My theory, which I hold, and shall hold, to be fairly founded on a wide induction, forbids me to blame and to judge: because it tells me that these defects are mainly physical; that those who exhibit them are mainly to be pitied, as victims of the sins or ignorance of their forefathers. But it tells me too, that those who, professing to be educated men, and therefore bound to know better, treat these physical phenomena as spiritual, healthy, and praiseworthy; who even exasperate them, that they may make capital out of the weaknesses of fallen man, are the most contemptible and yet the most dangerous of public enemies, let them cloak their quackery under whatsoever patriotic, or scientific, or even sacred words.

There are those again honest, kindly, sensible, practical men, many of them; men whom I have no wish to offend; whom I had rather ask to teach me some of their own experience and common sense, which has learned to discern, like good statesmen, not only what ought to be done, but what can be done—there are those, I say, who would sooner see this whole question let alone. Their feeling, as far as I can analyse it, seems to be, that the evils of which I have been complaining, are on the whole inevitable: or, if not, that we can mend so very little of them, that it is wisest to leave them alone altogether, lest, like certain sewers, “the more you stir them, the more they smell.” They fear lest we should unsettle the minds of the many for whom these evils will never be mended; lest we make them discontented; discontented with their houses, their occupations, their food, their whole social arrangements; and all in vain.

I should answer, in all courtesy and humility—for I sympathise deeply with such men and women, and respect them deeply likewise—But are not people discontented already, from the lowest to the highest? And ought a man, in such a piecemeal, foolish, greedy, sinful world as this is, and always has been, to be anything but discontented? If he thinks that things are going all right, must he not have a most beggarly conception of what going right means? And if things are not going right, can it be anything but good for him to see that they are not going right? Can truth and fact harm any human

being? I shall not believe so, as long as I have a Bible wherein to believe. For my part, I should like to make every man, woman, and child whom I meet discontented with themselves, even as I am discontented with myself. I should like to awaken in them, about their physical, their intellectual, their moral condition, that divine discontent which is the parent, first of upward aspiration and then of self-control, thought, effort to fulfil that aspiration even in part. For to be discontented with the divine discontent, and to be ashamed with the noble shame, is the very germ and first upgrowth of all virtue. Men begin at first, as boys begin when they grumble at their school and their schoolmasters, to lay the blame on others; to be discontented with their circumstances—the things which stand around them; and to cry, “Oh that I had this!” “Oh that I had that!” But that way no deliverance lies. That discontent only ends in revolt and rebellion, social or political; and that, again, still in the same worship of circumstances—but this time desperate—which ends, let it disguise itself under what fine names it will, in what the old Greeks called a tyranny; in which—as in the Spanish republics of America, and in France more than once—all have become the voluntary slaves of one man, because each man fancies that the one man can improve his circumstances for him.

But the wise man will learn, like Epictetus the heroic slave, the slave of Epaphroditus, Nero’s minion—and in what baser and uglier circumstances could human being find himself?—to find out the secret of being truly free; namely, to be discontented with no man and no thing save himself. To say not—“Oh that I had this and that!” but “Oh that I were this and that!” Then, by God’s help—and that heroic slave, heathen though he was, believed and trusted in God’s help—“I will make myself that which God has shown me that I ought to be and can be.”

Ten thousand a-year, or ten million a-year, as Epictetus saw full well, cannot mend that vulgar discontent with circumstances, which he had felt—and who with more right?—and conquered, and despised. For that is the discontent of children, wanting always more holidays and more sweets. But I wish my readers to have, and to cherish, the discontent of men and women.

Therefore I would make men and women discontented, with the divine and wholesome discontent, at their own physical frame, and at that of their children. I would accustom their eyes to those precious heirlooms of the human race, the statues of the old Greeks; to their tender grandeur, their chaste healthfulness, their unconscious, because perfect, might: and say—There; these are tokens to you, and to all generations yet unborn, of what man could be once; of what he can be again if he will obey those laws of nature which are the voice of God. I would make them discontented with the ugliness and closeness of their dwellings; I would make the men discontented with the fashion of their garments, and still more just now the women, of all ranks, with the fashion of theirs; and with everything around them which they have the power of improving, if it be at all ungraceful, superfluous, tawdry, ridiculous, unwholesome. I would make them discontented with what they call their education, and say to them—You call the three Royal R's education? They are not education: no more is the knowledge which would enable you to take the highest prizes given by the Society of Arts, or any other body. They are not education: they are only instruction; a necessary groundwork, in an age like this, for making practical use of your education: but not the education itself.

And if they asked me, What then education meant? I should point them, first, I think, to noble old Lilly's noble old 'Euphues,' of three hundred years ago, and ask them to consider what it says about education, and especially this passage concerning that mere knowledge which is now-a-days strangely miscalled education. "There are two principal and peculiar gifts in the nature of man, knowledge and reason. The one"—that is reason—"commandeth, and the other"—that is knowledge—"obeyeth. These things neither the whirling wheel of fortune can change, nor the deceitful cavillings of worldlings separate, neither sickness abate, nor age abolish." And next I should point them to those pages in Mr. Gladstone's 'Juventus Mundi,' where he describes the ideal training of a Greek youth in Homer's days; and say,—There: that is an education fit for a really civilised man, even though he never saw a book in his life; the full, proportionate, harmonious educating—that is, bringing out and developing—of all the faculties of his body, mind, and

heart, till he becomes at once a reverent yet a self-assured, a graceful and yet a valiant, an able and yet an eloquent personage.

And if any should say to me—"But what has this to do with science? Homer's Greeks knew no science;" I should rejoin—But they had, pre-eminently above all ancient races which we know, the scientific instinct; the teachableness and modesty; the clear eye and quick ear; the hearty reverence for fact and nature, and for the human body, and mind, and spirit; for human nature, in a word, in its completeness, as the highest fact upon this earth. Therefore they became in after years, not only the great colonisers and the great civilisers of the old world—the most practical people, I hold, which the world ever saw; but the parents of all sound physics as well as of all sound metaphysics. Their very religion, in spite of its imperfections, helped forward their education, not in spite of, but by means of, that anthropomorphism which we sometimes too hastily decry. As Mr. Gladstone says in a passage which I must quote at length—"As regarded all other functions of our nature, outside the domain of the life to Godward—all those functions which are summed up in what St. Paul calls the flesh and the mind, the psychic and bodily life, the tendency of the system was to exalt the human element, by proposing a model of beauty, strength, and wisdom, in all their combinations, so elevated that the effort to attain them required a continual upward strain. It made divinity attainable; and thus it effectually directed the thought and aim of man

'Along the line of limitless desires.'

Such a scheme of religion, though failing grossly in the government of the passions, and in upholding the standard of moral duties, tended powerfully to produce a lofty self-respect, and a large, free, and varied conception of humanity. It incorporated itself in schemes of notable discipline for mind and body, indeed of a life-long education; and these habits of mind and action had their marked results (to omit many other greatneses) in a philosophy, literature, and art, which remain to this day unrivalled or unsurpassed."

So much those old Greeks did for their own education, without science and without Christianity. We who have both: what might we not do, if we would be true to our advantages, and to ourselves?

## THE TWO BREATHS. A LECTURE DELIVERED AT WINCHESTER, MAY 31, 1869.

Ladies,—I have been honoured by a second invitation to address you here, from the lady to whose public spirit the establishment of these lectures is due. I dare not refuse it: because it gives me an opportunity of speaking on a matter, knowledge and ignorance about which may seriously affect your health and happiness, and that of the children with whom you may have to do. I must apologize if I say many things which are well known to many persons in this room: they ought to be well known to all; and it is generally best to assume total ignorance in one's hearers, and to begin from the beginning.

I shall try to be as simple as possible; to trouble you as little as possible with scientific terms; to be practical; and at the same time, if possible, interesting.

I should wish to call this lecture "The Two Breaths:" not merely "The Breath;" and for this reason: every time you breathe, you breathe two different breaths; you take in one, you give out another. The composition of those two breaths is different. Their effects are different. The breath which has been breathed out must not be breathed in again. To tell you why it must not would lead me into anatomical details, not quite in place here as yet: though the day will come, I trust, when every woman entrusted with the care of children will be expected to know something about them. But this I may say—Those who habitually take in fresh breath will probably grow up large, strong, ruddy, cheerful, active, clear-headed, fit for their work. Those who habitually take in the breath which has been breathed out by themselves, or any other living creature, will certainly grow up, if they grow up at all, small, weak, pale, nervous, depressed, unfit for work, and tempted continually to resort to stimulants, and become drunkards.

If you want to see how different the breath breathed out is from the breath taken in, you have only to try a somewhat cruel experiment, but one which people too often try upon themselves, their children, and their work-people. If you take any small animal with

lungs like your own—a mouse, for instance—and force it to breathe no air but what you have breathed already; if you put it in a close box, and while you take in breath from the outer air, send out your breath through a tube, into that box, the animal will soon faint; if you go on long with this process, it will die.

Take a second instance, which I beg to press most seriously on the notice of mothers, governesses, and nurses: If you allow a child to get into the habit of sleeping with its head under the bed-clothes, and thereby breathing its own breath over and over again, that child will assuredly grow pale, weak, and ill. Medical men have cases on record of scrofula appearing in children previously healthy, which could only be accounted for from this habit, and which ceased when the habit stopped. Let me again entreat your attention to this undoubted fact.

Take another instance, which is only too common: If you are in a crowded room, with plenty of fire and lights and company, doors and windows all shut tight, how often you feel faint—so faint, that you may require smelling-salts or some other stimulant. The cause of your faintness is just the same as that of the mouse's fainting in the box: you and your friends, and, as I shall show you presently, the fire and the candles likewise, having been all breathing each other's breaths, over and over again, till the air has become unfit to support life. You are doing your best to enact over again the Highland tragedy, of which Sir James Simpson tells in his lectures to the working-classes of Edinburgh, when at a Christmas meeting thirty-six persons danced all night in a small room with a low ceiling, keeping the doors and windows shut. The atmosphere of the room was noxious beyond description; and the effect was, that seven of the party were soon after seized with typhus fever, of which two died. You are inflicting on yourselves the torments of the poor dog, who is kept at the Grotto del Cane, near Naples, to be stupified, for the amusement of visitors, by the carbonic acid gas of the Grotto, and brought to life again by being dragged into the fresh air; nay, you are inflicting upon yourselves the torments of the famous Black Hole of Calcutta; and, if there was no chimney in the room, by which some fresh air could enter, the candles would soon burn blue—as they do, you know, when ghosts appear; your brains be-